

## **REMARKS**

The issues outstanding in this application are as follows:

- Claims 1-10, 13, 14, and 18 are rejected under 35 U.S.C. § 103.
- Claims 11, 12, 16, 19, and 20 are allowed.

Claims 2, 3, 7, 10, and 14 are currently amended, and claims 15 and 17 are canceled. Claims 1-14, 16, and 18-20 are pending in this application. Based on the following, Applicants contend that all pending claims are allowable, and reconsideration of the pending claims is respectfully requested. No new matter has been added.

### **Amendments to the Claims:**

A selection of the claims has been amended for clarity. In this section, the page, paragraph, and line numbers refer to those Applicants' original specification.

In claim 2, the word "of" has been substituted for the term "or" to more clearly define the claimed limitation. Support for the change to claim 2 may be found in claim 3 as originally filed.

Claim 3 has been amended for clarity. Support for claim 3, as amended, may be found throughout page 13, and particularly on line 31 of page 13.

Claim 7 has been amended to substitute the known scientific term "polytetrafluoroethylene" term for the term "TEFLON".

Claim 10 has been amended to more clearly recite the claimed spatial relation of the probe to the rail. Support for the change to claim 10 is found on page 13, second paragraph.

Claim 14 has been amended to properly refer back to the "plurality of probes." No new matter has been added.

### **Rejection under 35 U.S.C. § 103(a):**

Claims 1-10, 13, 14, and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Earnest et al., of record (hereafter Earnest), in view of the newly cited Moyer (U.S. Patent No. 4,510,447 hereafter Drake). To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference

(or references when combined) must teach or suggest all the claim limitations. See M.P.E.P. § 2143. Without conceding the first and second criteria, Applicants contend that the prior art does not teach or suggest all the limitations of Applicants' claims and therefore doesn't satisfy the third criterion of the prima facie case of obviousness.

Claim 1 defines the limitation "a toroidal-shaped DC magnet mounted to the transporter with its opposing pole ends inwardly directed towards each other and aligned over the rail head." Claim 18 defines the limitation "generating a saturated magnetic field into and across the rail head with a DC saturation magnet . . . , the saturation magnet having a toroidal shape with opposing pole ends inwardly directed towards each other over the rail head." Applicants respectfully contend that the prior art does not teach or suggest the above-quoted limitations relating to a toroidal-shaped magnet.

Moyer discloses apparatus for detecting flaws in the wall of a pipe, the apparatus having a rectangular shape (see Figure 1). Specifically, the "magnetizing circuit" (see col. 2, line 53) having this rectangular shape includes an L-shaped core connected to an L-shaped bracket (see col. 2, lines 25-28). The assembly including these two parts forms three sides of a conventional rectangle. See apparatus "11" of Figure 1. Moreover, Moyer does not teach or suggest any alternative shape for its magnetizing circuit, toroidal or otherwise. Accordingly, Moyer does not teach or suggest the quoted limitations of claims 1 and 18.

Earnest also does not disclose a toroidal-shaped magnet, instead disclosing only a rectangular saturating magnet. See Figure 2 on page 2 of Earnest. Applicants' specification provides a detailed discussion contrasting the claimed toroidal-shaped magnet with the rectangular magnet disclosed in Earnest and articulating the benefits of the claimed toroidal-shaped magnet. See Applicants' specification, page 10. For the sake of brevity, the specification's discussion will not be repeated here. However, that discussion observes that the toroidal-shaped magnet provides greater magnetic density near the surface of the rail head, leading to the benefits of reduced skin effect for the probe and reduced signal variations in the probe due to the rail head material. See Applicants' specification, page 10, lines 10-12. Accordingly, Earnest does not teach or suggest the quoted limitations of claims 1 and 18.

While not specifically mentioning the toroidal shape of Applicants' magnet, the Office Action asserts that the specific details of the magnet are "obvious design considerations," or

in the more conventional parlance, a matter of “design choice.” Applicants respectfully disagree. In one prior case, the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice. M.P.E.P. § 2144.04 (C) citing *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975). This section of the M.P.E.P. continues: “However, ‘[t]he mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims . . . is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant’s specification, to make the necessary changes in the reference device.’” See M.P.E.P. § 2144.04(C) citing *Ex Parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351 (Bd. Pat. App. & Inter. 1984) (emphasis added). In the present application, since Earnest and Moyer do not teach or suggest the deployment of a toroidal-shaped magnet, Applicants contend that any asserted motivation to modify the magnets of the prior art to incorporate the toroidal shape of Applicants’ magnet is drawn from Applicants’ specification and not the prior art. Under these circumstances, the shape of Applicants’ magnet is not an obvious matter of design choice under the rules discussed above from M.P.E.P. § 2144.04 (C).

In view of the foregoing, the proffered combination of Earnest and Moyer does not teach or suggest the limitations of independent claims 1 and 18. Accordingly, claims 1 and 18 are patentable over Earnest in view of Moyer under 35 U.S.C. § 103(a). Claims 2-10, 13, and 14 depend from claim 1, inherit all the limitations thereof, and are therefore patentable over the prior art for the same reasons as claim 1. Moreover, the dependent claims recite further novel, nonobvious limitations not taught or suggested by the prior art. A selection of the dependent claims is discussed below.

Claim 2 defines the limitation “one of a plurality of supports on said carriage engaging the rail head . . . .” Neither Earnest nor Moyer teach or suggest this limitation. The Office Action concedes that Earnest does not disclose the carriage or the specific details of the carriage. See the Office Action, page 2. However, the Office Action contends that Moyer cures this deficiency by teaching a flaw detector on a carriage with a plurality of supports. Applicants respectfully disagree.

The Office Action asserts that Moyer teaches a carriage and that “the sensor further comprises protective material.” These assertions apparently analogize Applicants’ carriage

to Moyer's "housing" and Applicants' protective material to Moyer's "wear-resistant shoe end." However, Moyer does not disclose or illustrate any item other than Moyer's "shoe end" 38 between the housing 37 and the pipe 10 of Moyer. See Figure 1. In contrast, Applicants' specification discloses the simultaneous presence of supports 1400 and protective probe cap 550 on carriage 154. See Figures 15 and 16 of Applicants' specification. Accordingly, Moyer does not disclose any item that corresponds to Applicants' "supports" in its specification text and does not illustrate any such item in its Figures. Therefore, Moyer does not disclose the "plurality of supports" of claim 2. Accordingly, claim 2 defines patentable limitations in addition to those it inherits from claim 1 from which it depends.

Claim 3 depends from claim 2 and defines the limitation "wherein said plurality of supports are wheels." Applicants have already shown that the prior art does not teach or suggest the "plurality of supports" of claim 2. Moreover, the prior art also does not teach making these supports "wheels." Accordingly, claim 3 adds additional patentable limitations to claims 1 and 2 from which it depends.

Claim 8 defines the limitation "wherein the carriage comprises two spring-loaded supports." Earnest does not disclose a carriage or any spring-loaded support thereon. Moyer discloses and illustrates the use of only a single compression spring. See col. 3, lines 56-61 and Figure 1. Moreover, there is no suggestion in Moyer of deploying more than one spring. Applicants contend that the deployment of two springs provides the benefit of more effectively preventing lift-off in the event that one spring is temporarily compressed due to a jolt or other disturbance. Accordingly, claim 8 recites patentable limitations in addition to those it inherits from claim 1 from which it depends.

Claim 10 defines the limitation "wherein the carriage locates the low frequency eddy current probe off the center of the rail." Earnest is silent with respect to this limitation. Moyer is also silent with respect to locating its sensor off the center of its pipe. Moreover, when sensing flaws in a pipe having a circular cross-sectional geometry, locating a sensor in an off-center location would simply move the sensor further away from the portion of the pipe being sensed. Accordingly, there is no motivation to modify the system of Moyer to incorporate off-center sensor placement, and the limitations of claim 10 are therefore not obvious over Earnest in view of Moyer. Therefore, claim 10 defines limitations in addition to those it inherits from claim 1 from which it depends.

The Office Action asserts that the specific details of the mounting of the probe are a matter of design choice, although using the language "obvious design considerations." Applicants respectfully traverse this design-choice-based rejection. However, it is not clear which features the Office Action refers to in making this rejection. For example, it is not clear whether the "supports" recited in claim 2 are within the scope of the term "specific details of . . . mounting of the probe" as recited in the Office Action. Applicants therefore respectfully request, if this rejection is maintained, that more detail be provided in connection with this design-choice rejection so that Applicants may have a full and fair opportunity to respond.

**Conclusion:**

The Examiner is thanked for the allowance of claims 11, 12, 16, 19, and 20. Based on the foregoing, all pending claims are allowable, and Applicants respectfully request that the instant case be passed to issue. Should you have any questions regarding the above, please feel free to give the below-listed attorney a call. If additional fees are required, please debit our Deposit Account No. 04-1414.

Respectfully submitted,

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